

Siberian examples. Though I have recognised *N. c. kamtschatkensis* as a subspecies in my book on Palæartic birds, it is by no means sufficiently established, and a larger series should be compared.

[Two small flocks of half a dozen individuals each were met with, one at Gigalowa and the second a little further down the river. The birds utter a strong squeaking note and appear to prefer the thickets of pines. Those obtained in June were from one flock.]

82. *CORVUS CORONE ORIENTALIS* Eversm.

*Corvus orientalis* Eversmann, Add. Pall. Zoogr. fasc. ii. p. 7 (1841 : Narym River).

♀ ad. Gigalowa, 7. vi. 1903. (No. 11.)

♂ ad. Yakutsk, 22. vi. 1903. (No. 119.)

♂ ad. 200 miles below Yakutsk, 1. vii. 1903. (No. 157.)

XXXI.—*On Sexual Variation in the Wing of the Lapwing*  
(*Vanellus vulgaris*). By F. W. FROHAWK, M.B.O.U.,  
F.E.S.

ALTHOUGH the Lapwing is one of the birds most easily obtained in the flesh for six months of the year, yet ornithologists have apparently overlooked a very striking sexual character in the formation of the wing, as there is no reference whatever to it in any of the principal works on British birds. The following remarks may therefore be of sufficient interest to call attention to what I consider to be a good sexual character of this species, and a point probably worthy of consideration in other species possessing a general similarity in pattern and coloration of plumage.

Seebohm in his 'British Birds' says:—"The female Lapwing has less metallic gloss on the feathers, but otherwise scarcely differs from the male, except in having a shorter crest and in having the chin and throat marked with white, the white on the throat of the young females being

very conspicuous in breeding-plumage, whilst it almost disappears at that season in very old birds."

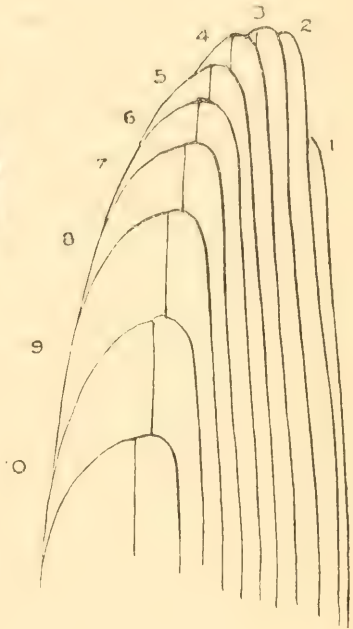
Mr. Howard Saunders states in his 'Manual':—"The mature female does not differ in plumage, but younger hens shew some white on the chin; in winter that part as well as the throat are white in both sexes. The young bird has a shorter crest and the dorsal feathers are edged with greyish buff."

Text-fig. 5



Wing of Lapwing, ♂.

Text-fig. 6.



Primaries of Lapwing, ♂.

The fact that the great difference in the wings of the sexes has escaped observation might at first appear due to descriptions having been taken from skins only, but in the closed wings of a skin the relative length of the primaries is so

marked that it appears strange that the difference should have hitherto remained unnoticed.

I have recently had ample opportunities of observing these birds, and have shot several for the purpose of study.

When sketching a fine male with the wings expanded, I was so much struck with the remarkable roundness and breadth of the primaries that I was led to dissect other specimens, with the result that I found those with the rounded wings to be males and those with comparatively narrow wings females. I only noticed this marked variation at the end of February, so had but little time to shoot examples for further study. I mentioned the peculiarity, however, to Mr. Castang, and with his kind assistance was enabled to look over many specimens in Leadenhall Market, the result being that the sexes were easily determined by the form of the wing.

The shapes of the expanded wings are very dissimilar, as will be seen from the drawings (text-figs. 5, 7), both of which are taken from adult birds shewing no light buff edges to the feathers, shot in February 1904. In the male, the primaries are long and broad, giving a decidedly curved outline, while the secondaries, being considerably shorter, add greatly to the rounded appearance of the wing.

The margin of the expanded wing of the female forms a continuous line, the primaries being much shorter and giving the wing a comparatively narrow appearance.

The following is the sexual wing-formula:—

Text-fig. 6.—♂. 3rd primary longest.

2nd and 4th primaries equal.

1st primary = 7th.

7th, 8th, and 9th primaries  $1\frac{1}{4}$  in. longer than in ♀.

7th primary  $1\frac{1}{4}$  in. wide—this being the average width of the inner primaries.

10th primary  $\frac{3}{4}$  in. longer than the 1st secondary.

The secondaries gradually diminish in length on nearing the base, giving a somewhat concave outline.

Text-fig. 8.— ♀ . 2nd and 3rd primaries equal and longest.  
1st and 4th primaries equal.  
7th primary 1 in. shorter than 1st.  
7th primary 1 in. wide.  
10th primary only  $\frac{1}{3}$  in. longer than the secondaries, excepting the 1st secondary, which is rather shorter than the rest.

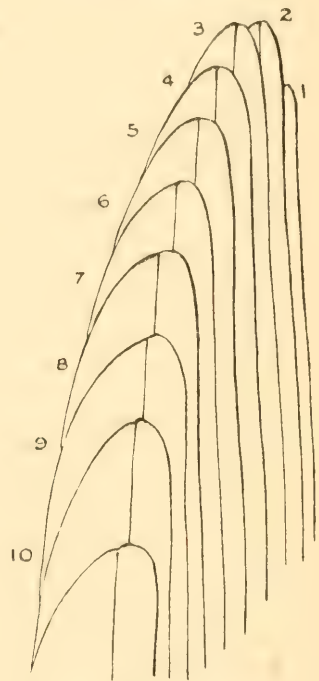
As a rule, the white basal portion of the secondaries in the female extends further down the feathers, so that the shorter

Text-fig. 7.



Wing of Lapwing, ♀ .

Text-fig. 8.



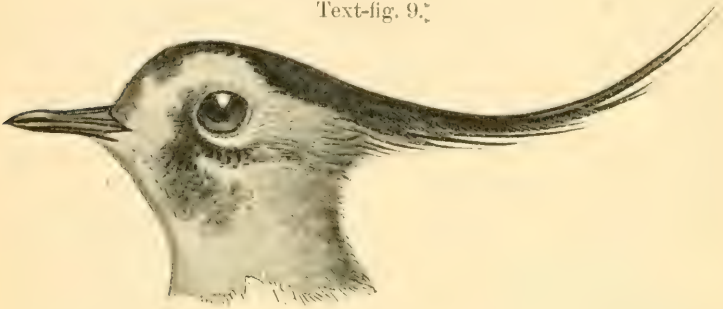
Primaries of Lapwing, ♀ .

black apical parts form a narrower marginal band on the under side of the expanded wing.

During flight the sexes may easily be distinguished by the great difference of wing-formation. When a flock passes

overhead, the males may readily be picked out, and it is just as easy when the birds are nesting to distinguish the males from the females as they fly over their breeding-ground, even at a considerable distance.

Text-fig. 9.



Lapwing, ♂.

There can be but little doubt that the remarkable roundness and great breadth of the primaries enable the males to throw themselves about in the air in the extraordinary manner they do during the breeding-season, while, so far as I can ascertain,

Text-fig. 10.



Lapwing, ♀.

it is only the male bird which indulges in these ridiculous aerial performances.

The other chief sexual differences noticeable in the Lapwing are:—

Text-figs. 9, 10.—1st. The relative size of the bill, a character hitherto overlooked.



2nd. The length of the crest.

3rd. The general coloration of the plumage of the ♀, which is a good deal paler than that of the ♂.

4th. The size, the ♀ being usually smaller than the ♂.

The bill of the ♀ is considerably longer than that of the ♂, while the crest of the ♂ is generally twice the length of that of the ♀.

The following are measurements of four specimens, which are about average examples:—

♂. 8th Feb., 1904.—Culmen  $\frac{7}{8}$  in., crest  $3\frac{1}{2}$  in., expanse of wings 29 in.; total length  $12\frac{3}{4}$  in., wing  $9\frac{1}{4}$  in. Weight  $10\frac{3}{4}$  ozs.

♂. 13th Feb., 1904.—Culmen  $\frac{7}{8}$  in., crest  $4\frac{1}{4}$  in., expanse of wings  $28\frac{1}{2}$  in.; total length 13 in., wing  $9\frac{1}{4}$  in. Weight  $8\frac{2}{3}$  ozs.

♀. 9th June, 1903.—Culmen 1 in., crest 2 in., expanse of wings  $26\frac{3}{4}$  in.; total length 12 in., wing  $8\frac{3}{4}$  in. Weight  $6\frac{1}{2}$  ozs.

♀. 15th Feb., 1904.—Culmen 1 in., crest 2 in., expanse of wings 27 in.; total length  $12\frac{1}{8}$  in., wing  $8\frac{3}{4}$  in. Weight  $6\frac{3}{4}$  ozs.

The colour of the legs and feet varies from light lilac-red to dull brown-pink. Iris very dark hazel; bill black. [*Cf.* Bull. Brit. Orn. Club, 1904, vol. xiv. p. 62.]

The flock of Lapwings which I kept under observation during the past winter consisted at the beginning of November of about forty birds; it gradually increased until the middle of January, when the numbers approached a thousand. These were accompanied by a flock of about a hundred Golden Plovers. When the Lapwings took to flight they were always closely followed by the Golden Plovers, which kept just in the rear, with their steady gliding flight in great contrast to that of the Lapwings.